



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/705,134 | 11/02/2000 | Alan E. Reamon | PD-99W231 | 6154 |

7590

04/02/2002

Leonard A Alkov Esq
Raytheon Company
PO Box 902 (E1/E150)
El Segundo, CA 90245-0902

EXAMINER

LEE, BENNY T

ART UNIT

PAPER NUMBER

2817

DATE MAILED: 04/02/2002

Please find below and/or attached an Office communication concerning this application or proceeding.



DEPARTMENT OF COMMERCE
Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

| | | |
|-----------------------|-------------|---------------------|
| FIRST NAMED APPLICANT | | ATTORNEY DOCKET NO. |
| SERIAL NUMBER | FILING DATE | EXAMINER |
| | | ART UNIT |
| | | PAPER NUMBER |
| | | 4 |
| DATE MAILED: | | |

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

☒ This application has been examined ☐ Responsive to communication filed on _____ ☐ This action is made final.
A shortened statutory period for response to this action is set to expire 3 month(s), _____ days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. ☒ Notice of References Cited by Examiner, PTO-892.
2. ☐ Notice re Patent Drawing, PTO-948.
3. ☐ Notice of Art Cited by Applicant, PTO-1449.
4. ☐ Notice of Informal Patent Application, Form PTO-152.
5. ☐ Information on How to Effect Drawing Changes, PTO-1474.
6. ☐ _____

Part II SUMMARY OF ACTION

1. ☒ Claims 1-14 are pending in the application.
2. ☐ Claims _____ are withdrawn from consideration.
3. ☐ Claims _____ have been cancelled.
4. ☒ Claims 1-9; 10; 11, 12; 13, 14 are allowed.
5. ☐ Claims _____ are rejected.
6. ☐ Claims _____ are objected to.
7. ☐ Claims _____ are subject to restriction or election requirement.
8. ☐ This application has been filed with informal drawings which are acceptable for examination purposes until such time as allowable subject matter is indicated.
9. ☐ Allowable subject matter having been indicated, formal drawings are required in response to this Office action.
10. ☐ The corrected or substitute drawings have been received on _____ These drawings are ☐ acceptable; ☐ not acceptable (see explanation).
11. ☐ The proposed drawing correction and/or the ☐ proposed additional or substitute sheet(s) of drawings, filed on _____ has been ☐ approved. ☐ disapproved (see explanation). However, ☐ approved by the examiner. ☐ disapproved by the examiner (see explanation).
12. ☐ The proposed drawing correction, filed _____, has been ☐ approved. ☐ disapproved (see explanation). However, the Patent and Trademark Office no longer makes drawing changes. It is now applicant's responsibility to ensure that the drawings are corrected. Corrections **MUST** be effected in accordance with the instructions set forth on the attached letter "INFORMATION ON HOW TO EFFECT DRAWING CHANGES", PTO-1474.
13. ☐ Acknowledgment is made of the claim for priority under 35 U.S.C. 119. The certified copy has ☐ been received ☐ not been received.
14. ☐ Other _____

EXAMINER'S ACTION
SN 705134

Art Unit: 2817

The disclosure is objected to because of the following informalities: Page 3, line 15, note that -- Detail -- should precede "DESCRIPTION" for clarity of description; lines 25-32, should reference labels be added for features described in figs. 1 and 2? Page 4, line 11; page 5, lines 4, 5; ~~page 7, line 14~~; note that -- one -- should follow "initial" and "ones" should be rewritten as -- one -- for consistency in description. ^{P 7, l. 14} ~~Page 5, line 4, note that "said" should be deleted as being unnecessary.~~ Page 6, line 31, is refer^{ence} to the plain view correct as recited? Note that reference label "50" needs to be described in the descriptions of figs. 3, 4, 5. Likewise reference labels (16, 16") need description relative to fig. 5..

Appropriate correction is required.

The drawings are objected to because of the following: In figs. ~~1, 2~~, should reference labels be provided to describe features therein?; In fig. 5, note that reference labels ~~(14, 42)~~ need to be added such as to be commensurate with the fig. 5 description; In fig. 6, reference label -- 10 -- needs to be added and the feature labeled ~~(16)~~ need to be properly cross-hatched as a conductive material. Correction is required.

Claims 7-9; 10, 11, 12; 13, 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 7, note that the "center conductive strips" lacks strict antecedent basis.

In claims ~~10, 11, 13~~, note that the "two laterally terminal of ..." lacks strict antecedent basis.

Art Unit: 2817

In claim ~~10~~, note that the relationship between the "two outermost ---strips" and the earlier recited "the two laterally terminal....strips" is unclear (e.g. ^usome as, different from, etc?).

The following claims have been found objectionable for reasons set forth below:

At each occurrence throughout the claims, note that ^uform^u and ^uforming^u should be rewritten as -- provide --- and -- providing --, respectively.

In claim s ~~2~~, ~~10~~, ~~11~~, ~~13~~, note that "an initial and final ones....top and bottom conductive planes" should be rephrased as -- an initial one and a final one...top conductive plane and a bottom conductive plane -- for a proper characterization.

In claims ~~9~~, ~~12~~, ~~14~~, note that -- plurality of -- should precede each occurrence of "vias" for consistency of description.

In claim ~~9~~, note that "said conductive strips and planes" should be rephrased as -- said terminal strips and said top and bottom planes-- for consistency purposes.

In claim ~~11~~, note that "N-1/2" should be rewritten as -- (N-1)/2-- for clarity of description.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-7 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by either

Landis or Cronin et al.

Art Unit: 2817

Landis (fig. 8) discloses an on-chip multi-layer shielded mono-lithic transmission line comprising top most and bottom ground layers (90, 68) and three part signal layer (82, 84, 80). Note that intervening layers of dielectric (e.g. 78 in Fig. 6) separate the conductive layers. Note that the center signal conducting strip (84) is laterally spaced from terminal strips (82, 80) by dielectric spacer material (e.g. 78). Moreover, note that additional conductive strips (72, 86; 74, 88) electrically connect in register between terminal strips (82, 80) and ground planes (68, 90) to provide an enclosed multi-layered shielding structure surrounding signal strip (84).

Similarly, Cronⁱⁿ (fig. 11) discloses an on-chip multi-layer shielded monolithic transmission line comprising top most and bottom most ground plane layers (60, 52) and a three part signal layer including a center signal strip (56A) laterally spaced from terminal strips (56). The conductive layers are separated by insulative layers (54, 58) and the laterally spaced conductive strips (56, 56A) of the signal layer have insulative separators which are part of insulative layer (58). Moreover, note that conductive strips (56) are electrically connected in register to group plane layers (52, 60) such as to provide an enclosed multi-layer shielding structure surrounding signal strip (56A).

Claims 11, ~~13~~ are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Landis.

Note that fig. 10 discloses an on-chip multi-layer shielded monolithic transmission line arrangement comprising a plurality of laterally spaced signal strips (96) which are individually surrounded and shielded by ground planes (70, 92) and side walls (94). Moreover, note that the

Art Unit: 2817

plural arrangement of fig. 10 is manufactured in the like manner for the signal transmission line arrangement (e.g. see fig. 8).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 8, 9, 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Landis or Cronin et al in view of Young.

As described in the above rejection, both Landis and Cronin et al disclose the claimed invention except that the interconnection of the terminal strips to the ground planes is effected by a solid conductive layer rather than by spaced conductive vias.

Art Unit: 2817

Young discloses a multi-layered transmission line structure including a three strip conductive arrangement including a signal strip (11) and laterally spaced terminal strips (21, 31). Note that of particular interest is the use of longitudinally spaced conductive vias which have a one-tenth wavelength spacing.

Accordingly, it would have been obvious in view of the references taken as a whole to have substituted conductive vias, as taught by Young, in place of interconnecting layers in either primary reference. Such a modification would have been considered an obvious substitution of art recognized equivalents in that longitudinally spaced conductive vias of one-tenth wavelength spacing effectively provide the same electrical effect as a solid conductive strip (i.e. the one-tenth wavelength spacing prevents outside ^{signals} from entering the structure), thereby providing the same shielding effect as achieved by a solid conductive strip, and thus suggesting the obviousness of such a modification.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. McClanahan et al discloses the use of conductive vias to surround a signal line. Arledge et al and Peterson show shielded structures in a monolithic environment.

Serial Number: 09/705,134

Page 7

Art Unit: 2817

Any inquiry concerning this communication should be directed to Benny Lee at
telephone number (703) 308-4902.

A handwritten signature in cursive script that reads "Benny Lee".

Lee/ds

BENNY T. LEE
PRIMARY EXAMINER
ART UNIT 2817

03/20/02